




Green Provinces & States

2014 REPORT
CARD



British Columbia and California have several things in common, from old-growth forests and Pacific

Ocean beaches to a love of electric cars and perceptions of a laid-back lifestyle.

They're also their respective country's top jurisdictions when it comes to green leadership, according to *Corporate Knights'* 2014 Green Provinces and States Report Card.

This is the first year *Corporate Knights* has ranked both Canadian provinces and U.S. states, a move that reflects the magazine's increasingly North American – indeed, global – voice. In doing so, the ranking methodology was streamlined to capture roughly comparable provincial- and state-level data from both countries.

Whereas our 2012 provinces report card relied on 35 indicators across seven categories, we decided in 2014 to only use 10 key performance indicators (KPIs) across six categories – air and climate, water, nature, transportation, waste, energy and buildings.

Many of the indicators used in the past were redundant or did not add much value to the analysis. In other words, more was not necessarily better. The 10 KPIs used in this year's ranking hit the mark more accurately. Together, they reflect in a much simpler way provincial and state progress on reducing greenhouse gases, air pollution, water consumption, production of waste and impacts on nature.

In some cases, such as the number of kilometres driven or water consumed, we took absolute numbers and ranked jurisdictions on a per-capita basis. In other cases, such as GHGs, air pollution and waste, we ranked jurisdictions by how much economic output has been achieved per unit of pollution or emission or waste. (Note that all imperial measurements were converted to metric, and U.S. dollars converted to Canadian currency.)

Other indicators were broken down and ranked by percentage – for example, the percentage of land and water protected in a jurisdiction or renewable electricity generated as a percentage of overall generation.

East vs. West Coast

Using this approach, B.C. and California emerged as clear leaders (see profiles for each on pages 55 and 56). Bridging them along the West Coast were Oregon and Washington, which both ranked among the Top 10 U.S. states for having a high mix of renewables on their grids, relatively low pollution levels and leading waste diversion rates.

The northeast, however, also dominated. Quebec, Prince Edward Island and Ontario, which announced

The 10 KPIs used this year reflect provincial and state progress on reducing GHGs, air pollution, water consumption, waste production, and impacts on nature.

in April it had finished phasing out coal for electricity generation, scored much higher than their inland counterparts in Western Canada and the prairies, while New York, Maryland and New England states Massachusetts, New Hampshire, Vermont, Rhode Island and Connecticut made up the rest of the U.S. Top 10.

The poorest performers? Deep South states, such as Alabama and Louisiana, distinguished themselves as among the heaviest drivers, poorest recyclers, least efficient energy users and greatest emitters of greenhouse gases. Of note among these was Mississippi, which ranked as the least green state in America.

Similar observations were made for Tornado Alley states Nebraska

and Oklahoma and their Midwestern neighbour North Dakota, all three of which ranked among the bottom 10.

In Canada, the provinces Saskatchewan, New Brunswick and Alberta also landed at the bottom for their poor energy productivity, dependence on fossil fuels and resulting high GHG emissions.

Bonus Points

Recognizing that performance data alone does not capture the whole picture, *Corporate Knights* created the opportunity for states and provinces to earn bonus points for having green policies designed to drive change. Bonus points, up to a maximum of 10, were awarded to jurisdictions with one or more of the following:

- A feed-in tariff (FIT) or renewable portfolio standard (RPS) program designed to drive investment in grid-connected green power projects;
- Mandatory e-waste recycling regulation;
- A climate plan with meaningful emission-reduction targets;
- A carbon tax or active membership in a carbon cap and trade program;
- Jurisdiction-wide mandatory energy reporting requirement for commercial buildings (half point given where one major city in a jurisdiction has mandatory reporting);
- Enables legislation for municipalities to use local improvement charges (LICs) to support financing programs (such as PACE or PAPER) for property owners looking to pursue renewable energy or energy-efficiency projects;
- Jurisdictional program for issuing green bonds that finance climate-friendly public infrastructure projects;
- Jurisdictional accounting that integrates natural capital stocks and flows;
- Policies that drive green building operations and construction, measured by LEED building square footage per capita;
- Policies that drive sustainable forestry, measured by percentage of FSC-certified forests in a jurisdiction.

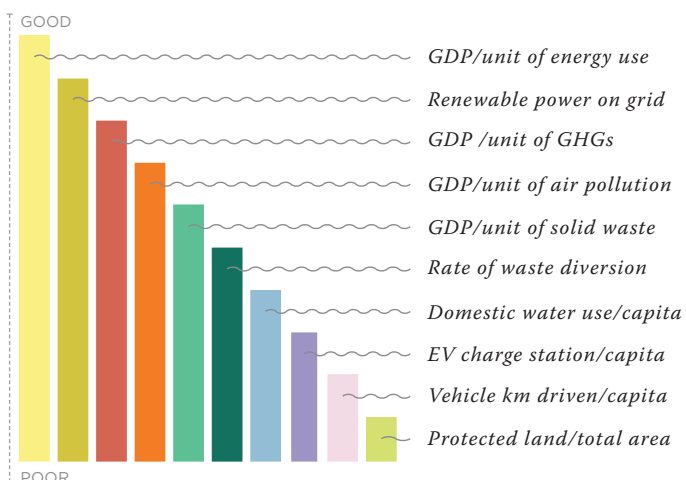
Report Card: Canada

Bonus points were added to each jurisdiction's ranking score to determine a final score. Fittingly, California received the most bonus points – a total of nine out of 10 – followed by New York with eight points and Minnesota, Massachusetts and Maryland with seven points each. In Canada, fourth-ranking Ontario was tops with seven bonus points, followed by Nova Scotia, British Columbia and Alberta at five points each.

Alabama, Idaho, Mississippi, Nebraska, Tennessee, North Dakota and South Dakota were the only U.S. states that received zero bonus points. In Canada, no province received zero, but Saskatchewan was lowest with only one bonus point earned. Of all bonus categories, in only one category did all provinces and states get zero – i.e. for their lack of natural capital accounting.

For a more detailed look at the methodology behind this ranking, visit corporateknights.com/provstate2014

SCORING LEGEND



British Columbia

BONUS POINTS

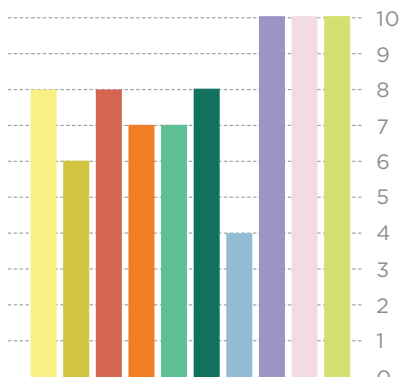
5

FINAL SCORE

83 / 100

RANK

1st



Prince Edward Island

BONUS POINTS

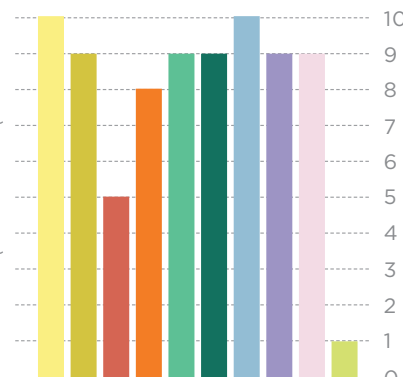
2

FINAL SCORE

81 / 100

RANK

2nd



Quebec

BONUS POINTS

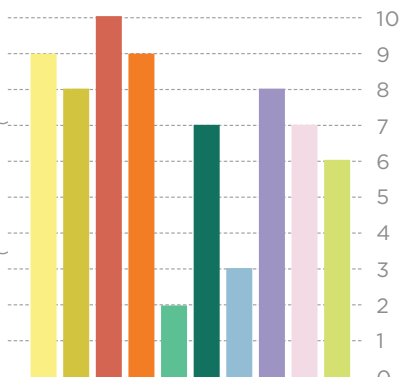
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FINAL SCORE

73 / 100

RANK

3rd



Ontario

BONUS POINTS

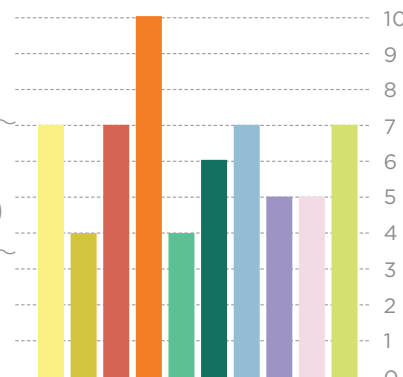
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FINAL SCORE

69 / 100

RANK

4th





Manitoba

BONUS POINTS

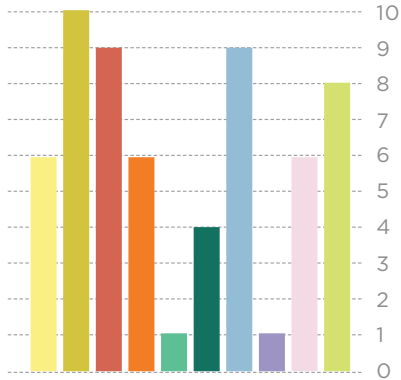
2

FINAL SCORE

62 / 100

RANK

5th



Nova Scotia

BONUS POINTS

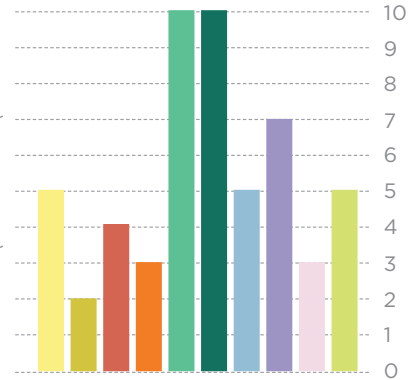
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FINAL SCORE

59 / 100

RANK

6th



Newfoundland and Labrador

BONUS POINTS

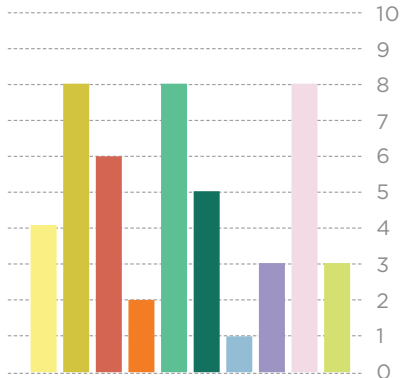
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FINAL SCORE

51 / 100

RANK

7th



Alberta

BONUS POINTS

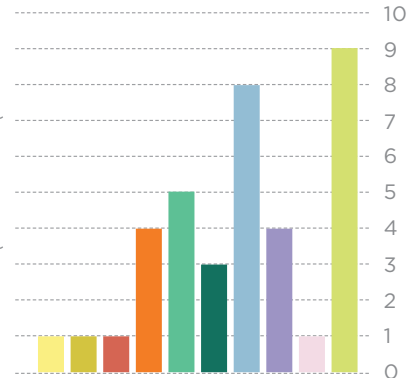
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FINAL SCORE

42 / 100

RANK

8th



New Brunswick

BONUS POINTS

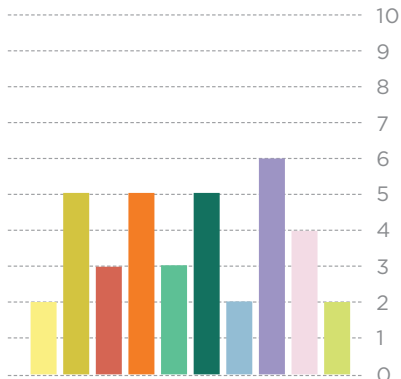
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FINAL SCORE

39 / 100

RANK

9th



Saskatchewan

BONUS POINTS

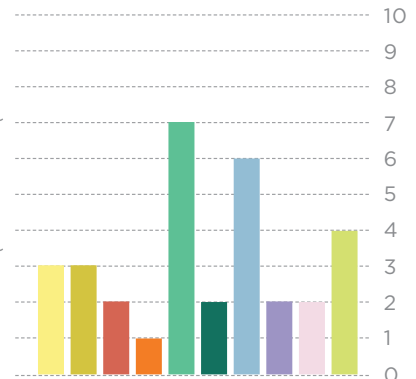
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FINAL SCORE

33 / 100

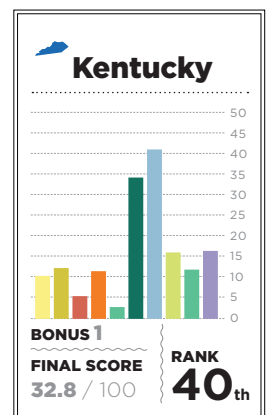
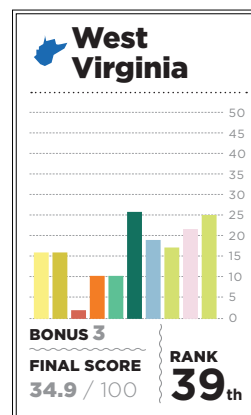
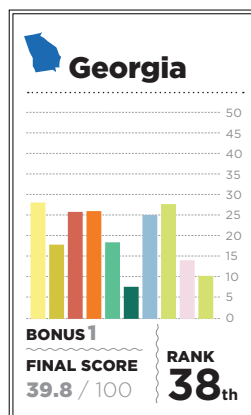
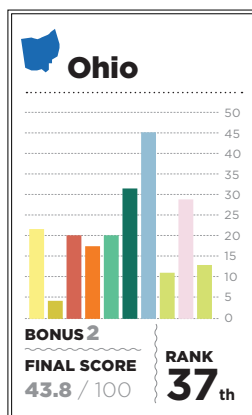
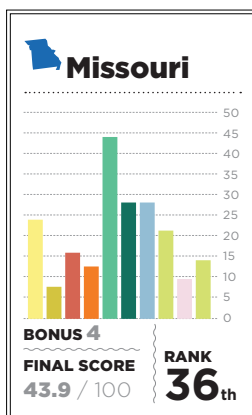
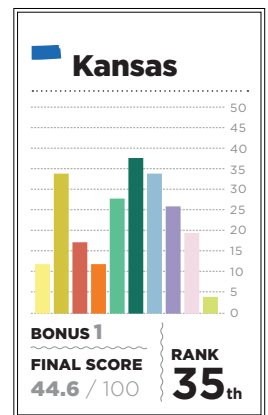
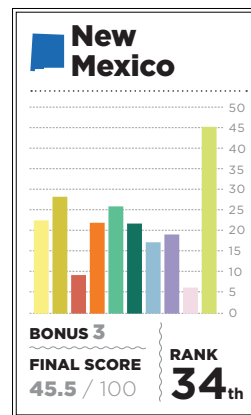
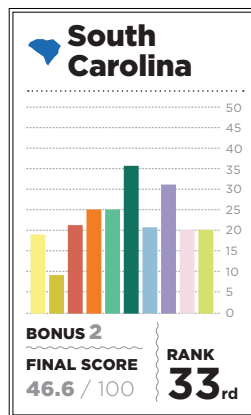
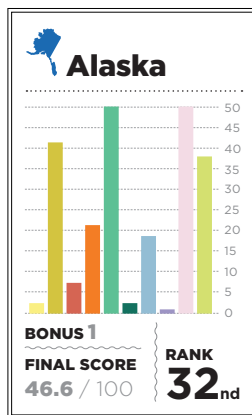
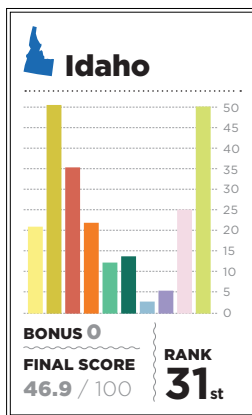
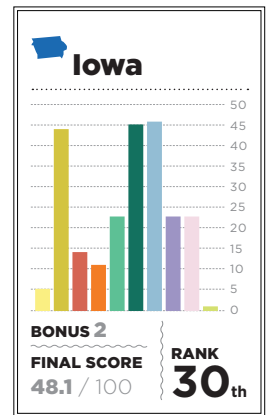
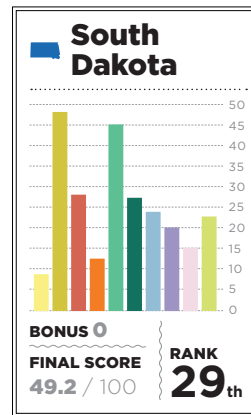
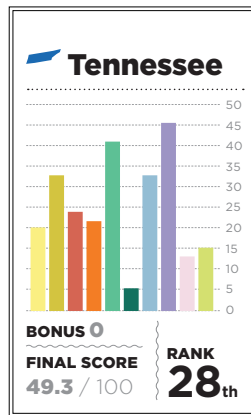
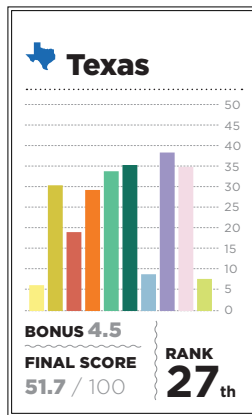
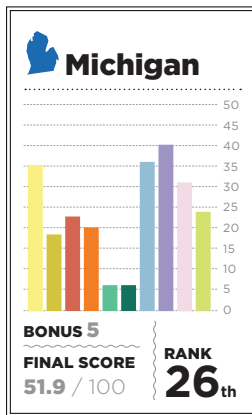
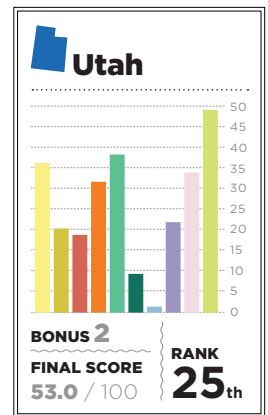
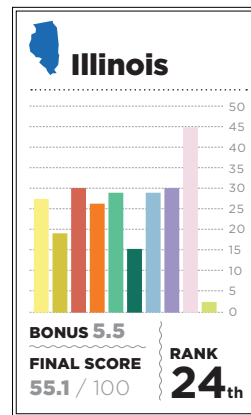
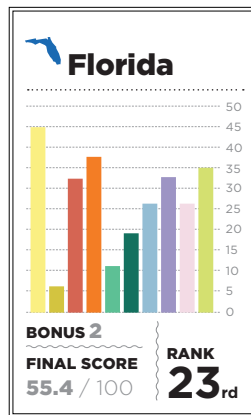
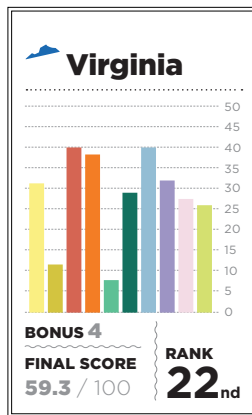
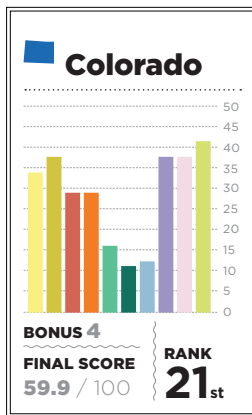
RANK

10th

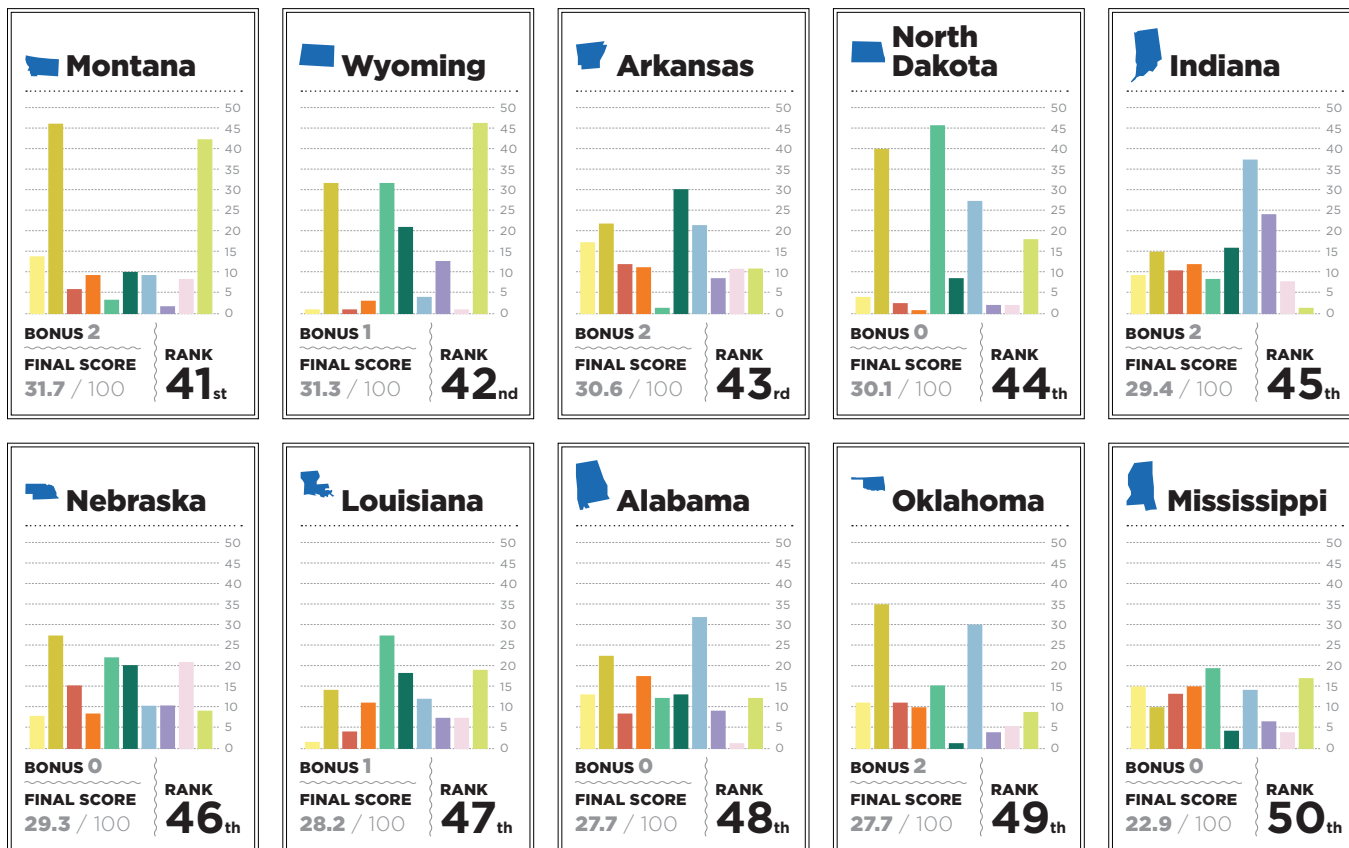


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British Columbia

The motto for Canada's most western province is *splendor sine occasu*, which translated from Latin means "splendour without diminishment."

As a guiding principle, it couldn't be more appropriate for British Columbia. For Canadians, the province is both a gateway to the Pacific Ocean and a place to cherish the greatest hits of nature, from the ruggedness of the Rocky Mountains to its oxygen-rich ancient forests and the biodiversity they nurture.

Not to suggest B.C. has no blemishes. Logging, mining, fossil fuel exploration and other industrial activities have left their combined mark on Canada's third-most populous province. But when compared to its provincial cousins, B.C.'s splendour is comparatively least diminished.

That's why *Corporate Knights* ranked B.C. as 2014's greenest province. It stands out for having the highest density of electric vehicle (EV) charging stations per capita and the highest percentage of protected land. British Columbians also drive the fewest kilometres per capita – 38 per cent less than worst-ranked Alberta.

But B.C. also performed well because it scored consistently high across most of the key performance indicators used in this year's ranking. It is the third-most economically efficient user of energy and emitter of greenhouse gas emissions, and it has the third-highest rate of municipal solid waste diversion in the country. Waste and air pollution produced per unit of economic output were also among the lowest.

It didn't score so well on our water indicator, however. B.C. residents are the fourth-highest users of water per capita, nearly twice as thirsty as best-ranked Prince Edward Island.

As for bonus points, B.C. tied Nova Scotia and Alberta for second place with a total number of five out of 10. Ontario earned the highest number with seven.

One likely contributor to B.C.'s top-notch performance is a carbon tax it introduced in July 2008. It's estimated that CO₂-equivalent emissions from gasoline consumption fell in the province by 3.5 million tonnes in the four years after the B.C. carbon tax was enacted, according to a study from researchers at the University of Ottawa.

Another study, by Ottawa-based think tank Sustainable Prosperity, found that B.C.'s per capita consumption of fuels just four years after the carbon tax was introduced declined by 19 per cent compared to the rest of Canada. It stands to reason that air pollution associated with the burning of fossil fuels also fell as a result of the carbon tax – all with little, if any, negative economic or political impacts.

"The implementation of British Columbia's carbon tax is as



The Case for a Carbon Tax

B.C. is Canada's greenest province for a number of reasons, but its decision to put a price on carbon stands out as its greatest single achievement.

near as we have to a textbook case," Angel Gurria, Secretary-General of the Organization for Economic Cooperation and Development, said in a speech last October.

The bigger question is what's next? B.C.'s carbon tax began with a rate of \$10 per tonne of CO₂ or equivalent GHG emissions, and has climbed to \$30 as of July 2012.

But some observers, such as University of Ottawa law and economics professor Stewart Elgie, say there appears little political will at the moment to raise the tax further. Another problem, he cites, is that the carbon tax currently exempts fugitive emissions – such as methane leaks – from the oil and gas sector.


This latter point is important, considering how determined the B.C. government is to turn the province into a natural gas powerhouse. The province has hundreds of trillions of cubic feet of natural gas locked away in various land formations, which can be extracted through a combination of traditional and alternative drilling methods, increasingly involving hydraulic fracturing or "fracking" techniques that can also threaten freshwater resources.

To get that gas to foreign markets, the current Liberal government is pushing for the construction of at least three liquefied natural gas (LNG) facilities within the next six years – and up to seven over the coming decade. These facilities, in addition

to the expected wave of new gas development, are expected to substantially increase B.C.'s greenhouse gas emissions and air pollution. Much of those emissions would not be subject to B.C.'s carbon tax, as currently designed.

"From fracking to liquefaction, each point along the supply chain would produce carbon pollution," according to the Pembina Institute, a Calgary-based energy think tank. It estimates that emissions from the industry could reach 73 tonnes by 2020, which is nearly three-quarters of projected emissions from Alberta's oil sands. "The potential carbon pollution from the LNG facilities and associated shale gas extraction and processing would make B.C.'s climate targets unachievable," Pembina has warned.

There are other, smaller signs that B.C., after making so much progress, is getting knocked off course. For example, a rebate program designed to encourage the purchase of electric vehicles expired in March. That program, which offered a rebate of up to \$5,000, is not expected to return, despite a pledge by the B.C. government to have EVs represent 10 per cent of new vehicles – in both public and private fleets – by 2016.

Clearly, B.C. has reason today to celebrate being Canada's greenest province. That it will keep that crown by the time our next green report card comes out is not so certain. 

California

It pays to start early. That's the lesson California has taught the rest of America on the issues of environment and clean energy. The Golden State has consistently exceeded federal environmental standards since the 1940s. In 1947, for example, it established the first air pollution control districts in the United States.

Getting a head start has its advantages. Back then, such policies were less politicized, and once in place, they built momentum that other states have since had difficulty replicating.

The results are indisputable. California's electricity use per capita is the lowest in the country and, after adopting the greenest building codes of any state, its performance is expected only to improve. It has relentlessly pushed fellow U.S. states and the federal government to tighten CO₂ emission standards, and has become a national hub of clean technology research and investment.

The importance of this cannot be understated. California, with a GDP of \$2.25 trillion (Canadian), is not just America's largest state economy – 43 per cent larger than second-place Texas – but also the world's ninth-largest economy with a GDP rivalling that of Russia.

"California's example shows how public intervention and private initiative can, at a sub-national level of government, push forward the agenda on green growth," according to a 2012 report from the World Bank. "The state has lifted up the environmental standards of the entire U.S. and even other countries that want to do business in this most populous and wealthy part of the U.S."

So it makes absolute sense that *Corporate Knights* would rank California as 2014's greenest state. With more than half of its municipal solid waste avoiding landfills, California is the top waste diverter in the country. It also ranked in the Top 5 for being economically efficient with energy use and for releasing the least amount of greenhouse gas emissions and air pollution per unit of economic activity.

According to the California Air Resources Board, air pollutants that cause smog have been cut by more than half over the past two decades even as the state's population grew. And California is committed through its Global Warming Solutions Act to reduce greenhouse gas emissions to 1990 levels by 2020 and 80 per cent below those levels by 2050.

Helping it to achieve that goal is a mandate to get 33 per cent of its electricity from renewable resources by 2020. "If the rest of the United States had done what California has over the past 40 years, the world might be well on the way to slowing climate change," wrote journalist Mark Hertsgaard in Yale University's online magazine *Environment 360*.



A Legacy of Leadership

With economic clout that rivals Russia and an environmental track record that few can match, California is unique in its ability to green the world beyond its own borders.

As California's electricity mix gets cleaner, so too do the electric vehicles plugging into its grid. The home of Tesla Motors, California has become the centre of America's electric vehicle boom, having one of the highest densities of EV charging stations in the nation. Only Oregon, Washington, Hawaii and District of Columbia have higher concentrations per capita. Despite strong resistance from automakers, new rules require that 15 per cent of vehicles sold in California by 2025 be classified as "zero emission."

States ranked by *Corporate Knights* had a chance to earn up to 10 bonus points to help boost their final score. On that front, California got an impressive nine out of 10 for having green policies such as a renewable portfolio standard, a cap-and-trade program, an e-waste recycling law and mandatory building energy reporting.

Its weak points have to do with household waste production and water use. While tops at diverting waste from landfills, California is the ninth biggest producer of municipal solid waste per capita. It also has the 15th highest per-capita domestic use of water.

On water, the fact that California is experiencing one of its worst droughts on record – a dry spell some studies have directly linked to climate change – means the state will have to do better. Already struggling with an increase in forest fire activity in recent years, the hot, dry weather and chronic lack of rain promises to make this season even

more volatile, authorities are saying.

The situation, in turn, could lead to an increase in air pollution. An April report from the California Air Pollution Control Officers' Association warned that increased smoke from wildfires and smog from the rising number of extreme heat days could erase decades of air quality improvements.

It's a discouraging reminder that local actions, while demonstrating leadership that others should follow, can't shield from the impacts of a global problem.

Severin Borenstein, director of the UC Energy Institute at University of California, Berkeley, says it may be time for the state to reposition its climate strategy. Rather than just focus on its own emissions, it needs to put more resources into helping others reduce emissions.

"The primary goal of California climate policy should be to invent and develop the technologies that can replace fossil fuels, allowing the poorer nations of the world – where most of the world's population lives – to achieve low-carbon economic growth," Borenstein wrote on his blog in April.

"If we can do that, we can avert the fundamental risk of climate change. If we don't do that, reducing California's carbon footprint won't matter." 🐻

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Anyone who has peeled an orange knows that burning sensation when oil from the fruit's rind inadvertently sprays the eyes. The main ingredient in that oil, which can be found in all citrus products, is a non-toxic and biodegradable compound called d-Limonene.

A green chemical, d-Limonene is extracted during the making of fruit juices and used in a variety of household products – from floor and toilet cleaners to soaps and shampoos.

One wouldn't expect this relatively benign substance to be at the centre of a controversy, but that's exactly the case in Utah, where there are plans to use d-Limonene to extract oil from the state's bitumen-soaked sands.

"We think we can develop the most environmentally responsible oil sands projects and one of the most responsible oil projects ever," says Cameron Todd, chief executive officer of Calgary-based U.S. Oil Sands.

Some environmental groups aren't convinced.

U.S. Oil Sands owns a 32,000-acre land position in Utah's Uinta Basin, the largest in the United States acquired

Utah at a Crossroads

A new citrus-based solvent being tested in Utah could dramatically clean up the business of oil sands development, but environmentalists say it's the wrong direction to go.

By Tyler Hamilton

for oil sands development purposes. Exploration of one quarter of that land shows potential to produce 184 million barrels of oil through strip mining.

Todd says U.S. Oil Sands can do it economically and with low environmental impact, using d-Limonene as part of a proprietary process to pull the oil from sand and other fine sediments. "We gently agitate the solvent into the oil sands and water," he explains. "It's like using a mild laundry detergent to get oil stains off of clothing. The results are quite astounding."

He says 96 per cent of the oil is recovered, leaving behind clean sand that can be returned to the mine. The process creates no sludge so eliminates the need for tailing ponds, and it uses less than half as much water as a conventional oil sands project. Of the water that is used, roughly 95 per cent is recycled (the 5 per cent lost is sourced from deep-drilled wells).

Energy use and, by association, greenhouse gas emissions are also substantially lower. "You cut the heat requirements in half because the water, when you recycle it, is still hot," says Todd. As for the d-Limonene solvent,

U.S. Oil Sands owns a 32,000-acre land position in Utah's Uinta Basin, the largest in the United States acquired for oil sands development purposes.

98 per cent of it is recycled and fed back into the company's patented process.

The economics are also compelling, assures Todd. Conventional oil sands production costs are \$110,000 per barrel per day for projects producing a minimum of 100,000 barrels daily, he says. By comparison, U.S. Oil Sands believes it can produce a barrel each day for \$25,000, even if a project is comparatively small – for example, as little as 2,000 barrels daily, which will be the size of the company's first project.

By reducing production costs by up to 75 per cent – what Todd calls a “game changer” – it opens up a market for smaller oil sands projects previously too uneconomic to consider.

Blessing or Burden?

But even if the company's process works as described, is the outcome likely to be as good as claimed?

Two environmental groups, Living Rivers and Western Resource Advocates, are standing firmly against U.S. Oil Sands' PR

Spring project. They argue the project has the potential to contaminate groundwater and that the state regulator, which permitted the project in 2010, hasn't done its homework.

Utah officials, in turn, say the area is a desert with virtually no groundwater to contaminate, so the risk of contamination is next to nil.

But a recent study led by researchers at the University of Utah disputes that conclusion. Recent hydrochemical samplings, they point out, reveal the existence of a hydrological system that links the area to perennial springs at lower-lying Main Canyon, on which many families and businesses rely.

While holes drilled around the proposed project site may look dry, the bigger question is what happens when there is rain and snowmelt? Where does the water go and what can it potentially take with it? These are questions now being considered by Utah's Supreme Court.

William Johnson, one of the study's authors, said in public testimony that it's not the d-Limonene on its own creating the concern. It's the fact that the solvent – any solvent, regardless of how benign it may be – will free up carcinogenic compounds in the oil sands and make them more easily transported through groundwater flow.

It's a point Todd disputes.

But the overarching ethical question remains: In a climate-constrained world that's rapidly using up its carbon budget, is opening up oil sands development to a much greater number of smaller projects a responsible direction to go?

The “cleaner” approach being pursued by U.S. Oil Sands may well displace much dirtier forms of oil production. In the end, however, it will be the climate – not just orange peels – that gets squeezed. 🌱

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